FACT SHEET FOR STATE WASTE DISCHARGE PERMIT ST- 5394
STEPTOE SEWER DISTRICT #1

SUMMARY

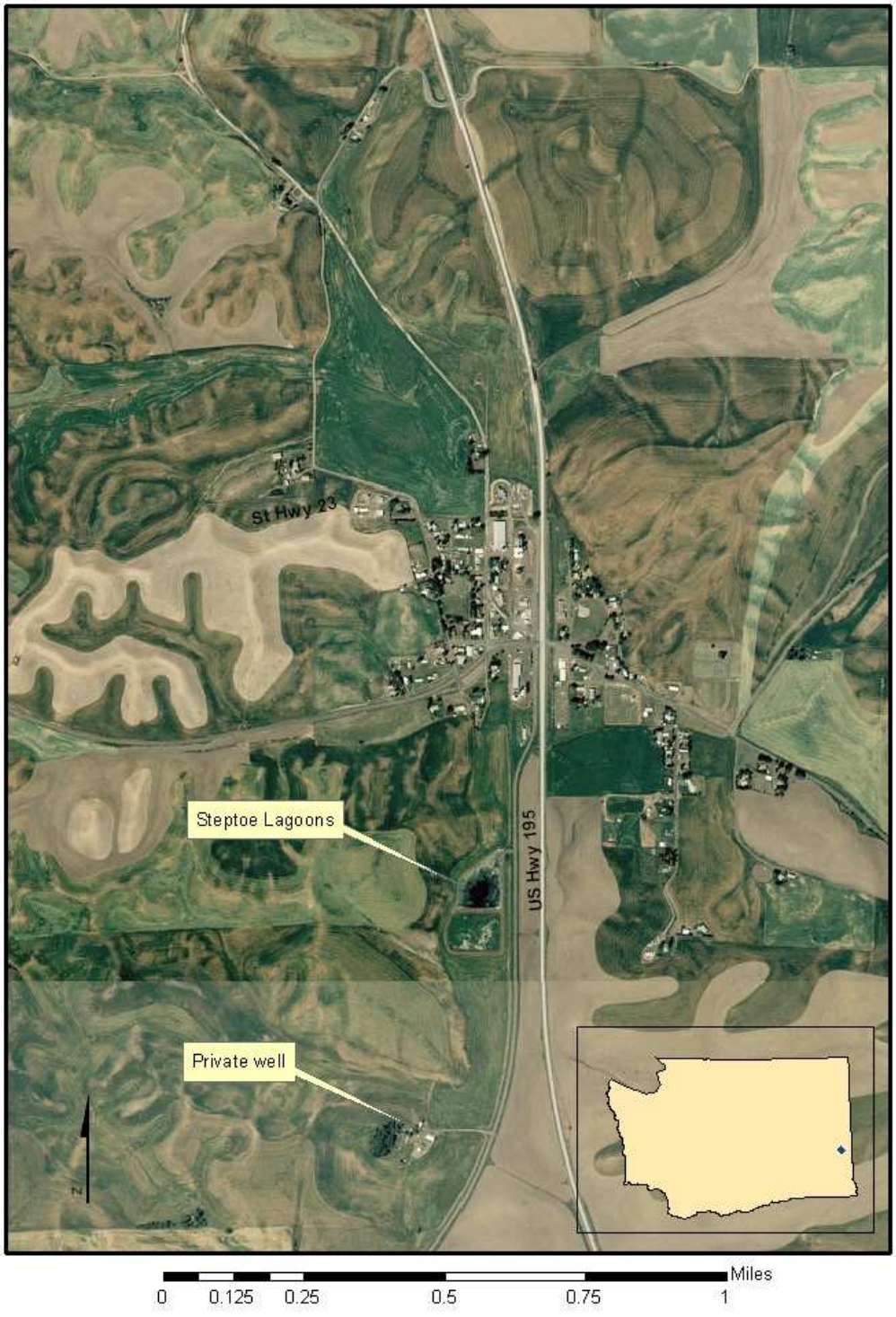
The Steptoe Sewer District #1 is the sewer district for the Town of Steptoe in Whitman County, about 45 miles south of Spokane and 22 miles northwest of Pullman. The boundaries of the sewer district are essentially the boundaries of the unincorporated community of Steptoe. U.S. Highway 195 runs through the middle of the sewer district, with the lagoons located just south of town and west of Highway 195 (Figure 1).

The entire Steptoe area is currently zoned agricultural with virtually all of the land in use for grain production. Within the Steptoe Sewer District, land use is almost entirely residential and commercial (grain storage, fertilizer handling, and a restaurant). Some land, particularly on the east side of the highway is devoted to the cultivation of pasture grass.

The facility's collection system consists of two earthen lined, non-overflow lagoons that are four acres each. Currently, the facility serves 88 customers in the Town of Steptoe with design criteria for 160 people. However, the original design was based on a per capital flow of 110 gpd/person, a commercial flow of 7,400 gpd and an infiltration allowance of 5,300 gpd. The documented flows, however, exceed 100,000 gallons/day annual average, which may be based on inaccurate pumping capabilities of the pump station . This permit will require that verification of the actual pumping capacity be determined.

The proposed permit cycle for this facility will be a period of two years. During these two years the permittee will conduct monthly and quarterly monitoring of the influent and groundwater. This monitoring data will provide wastewater and groundwater characterizations that will determine the course of action for the next permit cycle regarding capacity and efficiency of the system.

Figure 1. Site Location



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INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST-5394. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the State of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law (RCW 90.48.080 and 90.48.162) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the State include procedures for issuing permits (Chapter 173-216 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC) and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments

GENERAL INFORMATION	
Applicant	Steptoe Sewer District #1
Facility Name and Address	Steptoe Sewer District #1, Publicly Owned Treatment Works (POTW) P.O. Box 126 Steptoe, WA 99174
Type of Treatment System:	POTW; two-cell, non-overflow earthen lined lagoons
Discharge Location	Southwest of the town of Steptoe, adjacent to the boundary of the sewer district and immediately west of State Hwy 195. SE1/4 NW1/4 of Section 2, T.18 N., R. 43 E.W.M. Latitude: 47° 00' 04" N Longitude: 117° 21' 15" W.
Contact at Facility	Name: Dan Hall, Operator, P.O. Box 91, Steptoe, WA 99174, (509) 397-3235
Responsible Officials	Name: Loren Klinke, Commissioner, (509) 397-2361 Tammy Bowman, Commissioner, (509) 397-4013 Sheli Gibson, Commissioner and Treasurer, (509) 397-2722

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM

The Steptoe Sewer District #1 is located in Whitman County about 45 miles south of Spokane and 22 miles northwest of Pullman. The boundaries of the sewer district are essentially the boundaries of the unincorporated community of Steptoe. U.S. Highway 195 runs through the middle of the sewer district. The entire Steptoe area is currently zoned agricultural with virtually all of the land in use for grain production. Within the Steptoe Sewer District, land use is almost entirely residential and commercial (grain storage, fertilizer handling, and a restaurant). Some land, particularly on the east side of the highway is devoted to the cultivation of pasture grass.

Climatically, the Steptoe area is typical of the region: summers are hot and dry, while winters are cold and wet. Precipitation averages about 21 inches per year and evaporation is high during the summers. Soils in the Sewer District are classified as "Caldwell" silt loam - clay content in the topsoil ranges from 16-20%, increasing in the subsoil to 27-35%. Permeability is moderately slow to slow, and this material was used to line the treatment lagoons.

No permanent watercourses exist in the Steptoe area. Several intermittent streams carry runoff and seasonal groundwater. The engineering report commented that much of this seasonal groundwater was actually septic tank effluent. Groundwater is present in quantity throughout the soil profile and deeper groundwater is also present in the underlying basalt bedrock in weathered seams between the lava flows.

The current sewered population of Steptoe Sewer District #1 is approximately 160, which is the design population of the 160 for the 1996 planning period. However, the original design was based on a per capital flow of 110 gpd/person, a commercial flow of 7,400 gpd and an infiltration allowance of 5,300 gpd. The documented flows, however, exceed 100,000 gallons/day annual average, which may be based on inaccurate pumping capabilities of the pump station . This permit will require that verification of the actual pumping capacity be determined.

HISTORY

The city's sewerage system and wastewater treatment system were constructed in 1978 with federal and state grant assistance. Referendum 39 monies paid for 15% of the construction and planning costs and EPA paid for 75% with federal grant monies. The facility was constructed as an earthen lined 2 cell non-overflow lagoon, four acres each. Standards, at the time, allowed a 0.1 inch per day seepage rate from such lagoon systems.

COLLECTION SYSTEM STATUS

The collection system consists of approximately 9,000 lineal feet of 8" gravity sewer which collects the sewage from the homes and businesses in the S.D. Approximately 3,000 lineal feet of 10" gravity interceptor conveys the collected sewage to the pump station, immediately adjacent to the lagoons where it is pumped into valve pit. Wastewater can then be transferred to lagoon cell#1 or lagoon cell#2, but normally is discharged into cell #1. Valving and piping exists between the two lagoon cells at the 3, 4 an 5 feet levels. An overflow pipe at the 6 feet

level would allow discharge from the first cell should the water level in the first cell reach that elevation.

TREATMENT PROCESSES

The treatment system was designed for a flow of 30,300 gpd and only one of the lagoon cells normally receives any wastewater. During the previous years, since construction, it is common for the sewer district to pump water into the ponds to maintain sufficient water levels. All of the lagoons are 7 feet deep, from the top of the dike to the bottom of the lagoon. The first treatment lagoon, lagoon #1, of 4.00 acres in size, is constantly full, while lagoon #2 receives the overflow from #1, if there is any. During some years, lagoon #2 is not in use.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill.

GROUND WATER

There is no background information regarding ground water quality in the area. When the lagoons were completed in 1978, the plans and specifications indicated that there were nine monitoring wells located around the lagoons. During the last inspection on July 18, 2005, the current operator stated that there were monitoring wells, but they were overgrown with weeds and difficult to find. For this permit cycle, the permittee is required to locate the monitoring wells, document their location, and identify if they are functional. A written report containing the location and status of these wells will be submitted by June 1, 2006 to Ecology. Of the functioning wells identified, quarterly monitoring will be conducted for the parameters listed in condition S2 of the proposed permit.

PERMIT STATUS

The previous permit for this facility was issued on August 15, 2000. An application for permit renewal was submitted to the Department on April 22, 2005 and accepted by the Department on April 28, 2005.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on July 18, 2005. The previous operator, Pat Dowling had done everything possible to maintain and service the facility, without much success primarily due to lack of support and funding from the Sewer and Water district.

During the history of the previous permit, the Permittee has not remained in compliance based on Discharge Monitoring Reports (DMRs), specifically quarterly monitoring and by not submitting a local sewer ordinance, an annual wasteload assessment, seepage study, an engineering report or a ground water quality evaluation.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge has not been reported in the permit application or in the discharge monitoring reports. The permittee will be required to submit quarterly monitoring of the wastewater effluent as stated in condition S2 of the proposed permit.

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the State. The minimum requirements to demonstrate compliance with the AKART standard are derived from the *Water Reclamation and Reuse Standards*, the *Design Criteria for Municipal Wastewater Land Treatment*, and Chapter 173-221 WAC.

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 1: Ground Water Quality Criteria

Total Coliform Bacteria	1 Colony/ 100 mL
Total Dissolved Solids	500 mg/L
Chloride	250 mg/L
Sulfate	250 mg/L
Nitrate	10 mg/L
pH	6.5 to 8.5 standard units

Manganese	0.05 mg/L
Total Iron	0.3 mg/L
Toxics	No toxics in toxic amounts

In order to establish a background for effluent and ground water, the Permittee is required in condition S2 of the proposed permit to monitor concentrations near the point of discharge as well as the monitoring wells surrounding the lagoons. This information may result in a permit modification or limits in the next renewal.

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT ISSUED AUGUST 15, 2000

Table 2: Comparison of Previous and New Limits

Parameter	Existing Limits	Proposed Limits
Flow	30,300 gpd (avg. mo.)	30,300 gpd (avg. mo.)

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the proposed permit under condition S2. The sampling point for the influent will be at the pump station immediately preceding lagoon #1. The sampling point for the effluent from the above ground treatment works will be at the end of pipe discharging into the second lagoon.

Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Monitoring for flow, Biological Oxygen Demand, Total Kjeldahl Nitrogen, lagoon depth, and sludge depth are being required to characterize the effluent. These pollutants could have a significant impact on the quality of the ground water.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation. Upon submittal of the report identifying the existing groundwater monitoring wells, the permittee shall monitor according to the schedule in condition S2 of the proposed permit.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-216-110).

FACILITY LOADING

The design criteria for this treatment facility are taken from the February, 1977 Contract Documents prepared by Michael A. Kennedy Consulting Engineers and are as follows:

Monthly average flow:	30,300 gpd
BOD influent loading:	47 lbs/day
TSS influent loading:	47 lbs/day

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant (WAC 173-216-110[4]). The Permittee is required to submit an engineering report when the plant reaches 85% of its flow or loading capacity. For significant new discharges, the permit requires a new application and an engineering report (WAC 173-216-110[5]).

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. The O&M manual from January, 1978 is up to date for the current operations at the facility.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in permit condition S6. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503 and by Ecology under Chapter 70.95J RCW and Chapter 173-208 WAC. Requirements for monitoring sewage sludge and recordkeeping are included in this permit in condition S2. This information will by used by Ecology to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. The Department proposes that the permit be issued for 5 years to establish background monitoring of the wastewater and groundwater.

REFERENCES FOR TEXT AND APPENDICES

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

Kennedy, Michael A. February, 1977. Contract Documents and Wastewater Treatment Facilities for Steptoe Sewer District No. 1, Michael A. Kennedy Consulting Engineers.

Kennedy, Michael A. January, 1978. Operation & Maintenance Manual for Wastewater Treatment Facilities for Steptoe Sewer District No. 1, Michael A. Kennedy Consulting Engineers.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1997. Water Reclamation and Reuse Standards, Ecology Publication # 97-23. 73 pp.

Washington State Department of Ecology.

Laws and Regulations(http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html)

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards, Ecology Publication # 96-02.

Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on December 22 and December 29, 2005 in Whitman County Gazette to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

This permit was written by Marcie Mangold.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy,

crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

APPENDIX D--RESPONSE TO COMMENTS